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## Abstract

A map provides a unique view over the complex relationships of competition and complementarity between methods. It goes beyond the usual approaches to methods, namely monographic, mixed, encyclopaedic and classificatory. A diverse set of fifty social and political science methods instructors were surveyed about their specialty along seventeen dimensions that are regarded as contrasting by the methodology literature. Correspondence analysis and cluster analysis were used to reveal response profiles and proximities between courses. Results show that the 'qualitative/quantitative' divide appears structuring, but not as much as is often conceived. Quantitative-oriented courses form a rather cohesive cluster whereas qualitative courses display high variability regarding empirical material, scales of observation, techniques and epistemologies. The resulting global picture accounts for more dimensions of the quickly expanding space of methods than usual typologies of methods do. We hope it will stimulate new methodological combinations and new ways of teaching methods.

## Keywords

Methods, methods mapping, methods teaching, correspondence analysis, qualitative/quantitative.

## 1. Introduction

T. Kuhn (1970) conceived methods as part of the core of paradigms that structure the progress of scientific knowledge. Recent factors modify and reappraise their role in the social sciences. The decline of universal theories and explanatory narratives somewhat displaces the focus towards procedural and technical sophistication. Massive data have become available from universal numeric formats and easy web publication and new techniques to crop and treat them. Concurrently, research rings unify at national, continental and world level, thereby intensifying exchanges and competition. Since the 1960s-1970s, following an increased division of scientific work, methods have gained intellectual and institutional autonomy, all the more increasing the diversity of available approaches and tools.

Taking a systematic overview of methods is therefore of crucial importance to better grasp a discipline's current development, its converging and its diverging dynamics (Almond, 1998; Bennett, Barth and Rutherford, 2003; Kaufman-Osborn, 2006). In this paper, we see methodology as the systematic study of methods, that is, "as a wide-ranging framework for choosing analytical strategies and research designs that underpin substantive research (Moses, Rihoux and Kittel, 2005: 56). We take into account any aspect of the discipline's "know-how", as long as researchers claim it as such, be it called 'methods', 'techniques', or 'methodology'. Our sample, consisting of methods instructors in the ECPR (European Consortium for Political research) Methods School (MS)[1], reflects a large part of the diversity of understandings of (and importance granted to) methods and methodology in the discipline. These method specialists were recruited over several years in a systematic and stepwise fashion so as to cover the diverse needs expressed by the wide European social science community. Their views range from the most specific (techniques and sets of techniques, method *stricto sensu*) to the most general (research approaches, paradigms) and are strongly rooted in up-to-date global political/social science literature, thereby guaranteeing a reliable coverage of the discipline's methodological practices.

In a previous mapping project, Moses, Rihoux and Kittel (2005) distinguished large-N, medium-N and small-N methods, also contrasting political science in Europe and in the USA. Here we take a more inductive and empirically systematic perspective. Sample size is only one out of many potential factors of methodological diversity. Second, we take up a view that is not geographically located. Although most participants and a majority of instructors at the ECPR MS are based in Europe, neither participants' expectations nor instructors' pedagogy limit themselves to the European methodological tradition[2]—as far as it would exist (Rihoux, 2006). Courses rather target methods at their best in their respective field, often in line with developments in the USA.

## 2. The Usual Ways of Dealing with Methods

The first kind of methodological discourse is teaching. Transmitting methodological know-how is more and more considered as one of the basic building blocks of a discipline, in regular University curricula as well as in various "schools". The second is innovation, that is, providing new ways of doing research, based on new techniques, new designs, new field data that challenge the existing protocols. This is the function of methodology monographs and method journals such as the *International Journal of Social Research Methodology*.

Combining methods is a third aspect. Combining angles, levels of treatment and tools enables triangulating, , which is the motto of *mixed*-method or *multi*-method studies (Fielding and Fielding, 2008; Tashakkori and Teddlie, 1998). A fourth use of methods consists in

[1] http://ecpr.eu/Events/EventTypeDetails.aspx?EventTypeID=5 .

[2] Among the 49 respondents (see section 4), a sizeable minority have been partly or fully trained in the U.S.; some are currently U.S.-based, and some are U.S. nationals currently affiliated in European universities.

taking a view further away from daily research practices by listing and explaining methods, as well as providing introduction and references for each of them. This is the function of method handbooks, encyclopaedias and dictionaries, such as Goodin and Klingemann (eds., 1996), Lewis-Beck, Bryman and Liao (eds., 2004), or Keman and Wolendrop (eds., forthcoming).

One last approach consists in classifying methods, in an attempt to synthesise comprehensively the four kinds of contributions above. A typical example is Beissel-Durrant (2004), and continued by Luff et al. (2015). The purpose is to "assist discoverability and retrieval of relevant events and resources", "categorise items in the training and events database […], publications […], digital media resources […], web content […], support those users adding material(s) to categorise them in a simple and consistent way […], enable analysis of activity for both uploading and searches to inform future areas of research and training" (Luff et al. 2015). The result is a hierarchical, three-level tree, with each item belonging to a unique branch, thereby being strictly interpreted in the light of the higher levels it is embedded in.

These five approaches have proven useful, especially when one wishes to learn about a method already identified as relevant for her/his research project. To do so, however, one usually follows the advices given by one's instructor/mentor, fellow scholars or students, and/or renowned authors on the same topic. Hence one most frequently ends up reproducing the tracks traditional to her/his own subfield. This means complying with the endogenous logic of 'normal' scientific progress (Kuhn, 1970). None of the above uses of methods provides a general view over the space – or respective location – of methods, except classification trees, which offer a wider picture of the structure of the methodological space.

There are multiple, intricate causes to this dominant endogenicity in methodological reproduction. One is an ever increasing level of methodological sophistication, with dedicated concepts, know-how and software. Sophistication goes along with specialization, both for individual scholars, research units, sometimes even disciplinary subfields. Electoral studies for example dramatically focus on regression models applied to individual survey data, closing the door to alternative and complementary approaches to the same phenomenon such as ethnographic observation. Sophistication and specialization also go along with educational divides. For example, the quantitative-qualitative fracture. This replica of the separation between humanities and science (Snow, 1969) limits the ability of young scholars to bridge divides (Blanchard, 2007). Last but not least, there is a lack of incentives to publish beyond the methods seen as 'normal' in one given field, not to mention multi-method approaches (Bennett, Barth and Rutherford, 2003). These three factors must be seen as a complex but steady system with positive feedbacks. Beissel Durrant (2004) and Luff et al. (2015) barely escape this system, in particular because they firmly retain the quantitative-qualitative divide as a major classificatory divide. The best way to win the academic war− publishing, rallying, funding− is to take sides.

## 3. Why We Need to Map Methods

We propose mapping as an innovative and comprehensive way to improve our overall view on the methodological landscape, move beyond endogenous views and facilitate exchanges and

collaborations. A map of political science methods requires locating the methods in use relatively to each other and arranging all of them within the same property space. Such a map has at least four uses. It enables to locate a particular methodological practice relatively to others' and to compare them systematically. It helps one make the best next methodological step, instead of following disciplinary traditions, available training sessions or software trends. It also provides a more comprehensive view to method trainees: beyond 'mixed-methods' courses, methodological maps provide synthetic views on relevant or at least potential connections and combinations. Finally it helps one figure out what methodological complementarity, combination or chaining over time is worth considering on one's research topic. From an epistemological angle, it also provides a global view on the logic of disciplinary development. Methods used in a given field also contribute to its unity and continuity. In some cases, methods are part of the core disciplinary knowledge, such as regression models for electoral studies, life stories and longitudinal statistical methods for the study of professional careers or Qualitative Comparative Analysis (QCA) for comparative policy studies. A map of methods is also, to a large extent, a map of a discipline. As shown in bibliometrics studies of political science since the 1960s in Germany (Kittel, 2009; Pehl, 2012), methodological tracks connect with disciplinary subfields. Systematic reviews from journals and curricula in the USA, France, the UK and Germany (Bennett, Barth and Rutherford, 2003; Boncourt, 2007; Kittel, 2009) also illustrate how methods develop in connection with the discipline's growth and coherence.

Our first systematic attempt at mapping methods was based not on methods as they are used and published, but rather on methods as they are taught. The colour graph below (figure 1) was drawn from the abstracts of all courses taught in 2012-2013 at the two ECPR MS events, a fairly diversified sample, albeit not an exhaustive one, of the discipline's methodological landscape at that time.

[About here:
**Figure 1. Training offer at the ECPR Methods School (winter and summer) in 2012 (first mapping attempt)**]

We placed close to each other courses that bear similarities, based on our knowledge and on the abstracts provided by the MS instructors. We distinguished four main methodological families: case-based, interpretive, formal/experimental and statistical courses; plus fundamental courses, which prepare to family specialization; and software courses, which stand on the side because their function is to assist the use of different kinds of methods. We also identified two additional kinds of proximities. Basic or core groups of courses within families (dashed curves) identify courses to be viewed as prerequisites for more advanced ones. Between-family ties (continuous lines) intended to materialise "thematic transversal connections". For instance, the course on *Atlas.ti* belongs to the case-based and comparative cloud of methods, as it is focused on extracting similarities between texts or clusters of texts, whereas *N-Vivo*, devised to in-depth discourse analysis, belongs to the interpretive and

ethnographic cloud. However both software rely on similar tools from lexicometrics and content analysis and are classified within the category of Computer-assisted qualitative data analysis software (CAQDAS).

This map was pursuing two goals: describing the content of the respective courses as well as their substantive proximity, and helping participants to orientate themselves in a complex and growing methodological offer. Yet the result was not fully satisfactory. We submitted it to a diverse set of ECPR MS instructors and three out of eight expressed objections to the location of their course or to the structure of a part of the map. Transversal connections were seen as artificially bridging separate traditions, such as the one that gathered *Process tracing, Sequence analysis, Time series* and *Survival analysis* within a hub of methods dealing with "Time and processes". Additionally, our map was restricted to two dimensions, while we suspected that more were needed to account for such a rich and dynamic intellectual landscape. Consequently, many specialized methods, with diverse technical, epistemological, sometimes ontological backgrounds could not be arranged in a reliable way from a unique observation point.

## 4. A Bottom-Up Approach to Methods Mapping

Acknowledging the limits of our first, top-down perspective, we opted for an international, collaborative, horizontal and inductive survey among method experts. The rapidity with which methods develop, the diversity of tools they borrow from other fields and the fast growth of devoted scientific software demanded a more thoroughly documented approach, based on a broader group of method specialists. This was also a way to confront diverging conceptions and reveal the real degree of methodological discrepancy within the discipline. In this respect, the ECPR MS instructors constitute a first-choice panel of experts combining technical knowledge, a trained capacity to describe their specialty in intelligible words and useful epistemological hindsight.

Taking stock of the recent debates in the literature on method and epistemology, such as in King et al. (1994) and in Brady and Collier (2004), we set up a grid comprising 17 dimensions suited to contrast methods (Table 1), regarding research design (for example: q2. **Stage** of the research process at which the method operates), techniques (e.g. q8. Intensiveness of **Software** used) and epistemology (e.g. q12. Kind of **Causality** involved[3]). Besides, we assumed that methods carry conceptions and teaching practices within the discipline; hence we included questions about the place of methods within the scientific field (e.g. q15. Degree of **Acceptance** of the method) and the pedagogy used (e.g. q3. **Level** taught).

[3] Q16 (**Epistemology:** "Could you define in one or a few words the main epistemological position attached to the method taught in your course?") was kept open so as to catch as much as possible of the diversity of positions. The result was uneven. On one side, a third of the instructors did not reply, either refusing to declare too rigid, general positions, or uncertain about the precise technical term(s) that would fit their research practice. On the other side, the replies collected could be coded into seven quite clear stances (see Appendix 2).

[About here:
**Table 1. Survey questions and responses**]

The 17 questions were associated three to ten response categories each, aiming at covering most of what the instructors would feel like replying. By systematically allowing multiple answers and proposing a "Non applicable" option and an open cell for optional comments, we made it possible for respondents to express uncertain, evolving, ambiguous positions or other kinds of non-standard responses. All questions were presented in two columns: "My own view on the method as taught in the course"/"The predominant view of the larger community of users of this method (as much as you know about this predominant view)", so as to enable the expression of diverse practices by privileged observers, though this admittedly could not completely avoid self-centred bias in this respect.

The survey was submitted online in the spring of 2013 to all the instructors who proposed at least one course over the three most recent venues of the ECPR MS: winter 2012, winter 2013 and summer 2013. The resulting sample was a unique set of 55 courses taught by 49 expert respondents, out of a total of 82 courses taught by 64 experts (response rate: 67% in terms of courses and 77% in terms of respondents). The bulk of non-responses came from instructors teaching multiple (often similar) courses and replying just once; and others who did not reply because the questionnaire did not fit well their course, especially courses that did not include any empirical manipulations, such as software training and mathematical courses. Therefore no obvious bias is expected due to missing courses.

Three preliminary remarks should be made. First, we note strong similarity between the respondents' views and their perceived "predominant view" on the 17 questions: average Pearson correlation if 0.78, with 71% of the (91) items over 0.70. An optimistic interpretation would be that the sampled instructors are reliable representatives of their method, but more realistically we have to admit that in some cases the "predominant view" is inspired by the respondents' own. However, both "views" will be kept in the analysis, because this enables us to catch nuances for each method, even minimal ones.

Second, ticking several answers at one given question may be an indicator of how ambiguous the proposed answers are to the respondents, or of the difficulty to locate one's specialty. Fortunately respondents only made use of multiple answers in a reasonable manner. The number of answers is very similar for the respondent's and the predominant view, showing no sign of specific hesitation regarding one or the other view.

Third, the final "Overall comment" cell did not reveal any major flaw or deficiency in the questionnaire, in spite of the broad diversity of respondents. Two substantive difficulties were expressed: how to describe *one* predominant view if practices in one given field are diverse and subject to debate; and how to choose between responses that rely on categories that contradict the course as it is taught. However both difficulties could be overcome partly by using multiple responses. Let us recall at this stage that this wording is precisely the one used

in the current methodological debates and conflicts. Both our survey and the general debate about methods rely on similar terms and concepts, only partially consensual in the scientific community. Therefore validity is not smaller for the former than the latter.

## 5. The Qualitative *vs.* Quantitative Cleavage: Still Present But Not Consensual

We choose to apply multiple correspondence analysis (MCA), a method unrivalled in the exploration of survey data made from numerous multiple-choice categorical questions (Blanchard and Patou, 2003; Le Roux and Rouanet, 2004). Examining all questions one by one resorting to cross-tabulations and association tests would not have provided the comprehensive picture of how responses combine with each other. A regression model, in turn, would have implied an early and excessively restrictive causal design. On the contrary, MCA reveals the overall structure of the data, that is, how responses and courses associate with each other and in which proportions, without being constrained by precise prior hypotheses. MCA also lays the emphasis on the structure of the sample (Le Roux and Rouanet 2004: 1-22), i.e. the profile of distances between each course (resp. category) and all the other courses (resp. categories), rather than the dominance of a few courses (resp. categories) in the sample. This has the advantage that the overall result displays only minor sensitivity to the absence of some courses from the sample, which increases the robustness of MCA results and their representativeness of the overall methodological landscape.[4]

MCA is performed in three steps. First, the data structure is summarized into "factors", that is, recurring combinations of responses that characterize some of the courses. Then the factors are represented as axes on "factorial maps" with responses and courses as points on the map. Each map represents one projection of (i.e. one view on) the "space" of methods under study. Each factor contrasts two groups of responses that are mainly associated with different courses. For example, left-hand responses oppose to right-hand responses on the horizontal axis (see Appendices 1 and 2). The closer two response-points are, the more they were chosen by the same respondents. The closer two course-points are, the more similar the responses given by instructors about them. Third and finally, clouds of points can be gathered into clusters, resulting in a typology of responses and a typology of courses. Types are described by means of scores on axes and cross-tabulations.

We include all 17 variables (see Table 1) into MCA. At this point, our over-arching hypothesis is that the 17 questions will provide a relevant description of the courses' methodological and epistemological profiles and, consequently, of the space of methods. The most structuring responses and courses emerge on the maps, together with additional statistics[5]. Figure 2 is based on the first (i.e. main) two axes. It cumulates 21% of the total variance, i.e. of

[4] For some questions, the "predominant view" will more or less duplicate the respondent's view; for questions with significant discrepancy between dominant and personal view, the nuance will be taken into account. Note that this is not harming the balance between the 17 questions in the correspondence analysis design, as all of them will have the equal weight of 2.

[5] All statistical procedures and results are available upon request to the corresponding author.

all the information contained in the questionnaire, which is fairly high for this kind of data. Three clusters of courses clearly distinguish themselves (with no hierarchy between the three).

[About here:
**Figure 2. A map of methods (factorial map 1)**]

The group of instructors on the left-hand side (i.e. the first cluster $C_1^3$ of a typology in 3 clusters gathering 35 courses) see causality and inference as the main **Goal**[6] (q11) of their method, with broad generalization as a dominant **Scope**. They apply formal and statistical models (q9: **Formalization**) to large-N datasets (q6: **N**) made of individual and aggregate, categorical and ordinal-numerical data (q4: **Evidence**). They make ample use of software tools (q8: **Software**) and economics is the **Discipline** (q17) in which their method is most often used.

The bottom-right corner ($C_2^3$, n=7 courses) gathers instructors who do not reply to questions that make no or little sense regarding their topic. Indeed software and mathematics training do not bear much connection with **Theory** (q10), they are not applied to specific **Goals** (q11) and while being used by all **Disciplines** (q17), they do not belong to any specific one. This cluster taps less a substantive factor than a catch-all one, for courses that do not fit in $C_1^3$ and $C_3^3$.

The top-right corner ($C_3^3$, n=23) is composed of courses whose elements of **Evidence** (q4) are interviews, text, visual and sound material, or material from focus groups and ethnographic investigation. These courses are specifically interested in case studies and rely mainly on constructivist, interpretivist or realist **Epistemologies** (q16). They are hardly formalized and they understand method in a pluralistic way, as an introduction to different research approaches (q18: **Scope**).

In essence, this first map produces four main findings. To start with, some courses limited to one step of the research process occupy a specific position and are therefore less central to the survey than others ($C_2^3$). Prototypical examples are an *Introduction to SPSS* and *Linear Algebra and Calculus*. This result is partly an artefact, but also a real result: some methodological trends rely on general concepts, mathematical theories, or on specific computer tools, more than on specific empirical fieldwork, data, research designs or data treatments. As a consequence the courses isolated in the bottom right corner reflect some real research communities, such as game theoreticians, who distinguish themselves mainly with formal concepts and models, or some discourse analysts who predominantly rely on Computer assisted qualitative data analysis software (CAQDAS).

[6] Variables, i.e. questions asked to instructors, are in bold characters.

Second, the contrast between $C_1^3$ and $C_3^3$ seems to recall the traditional cleavage between quantitative and qualitative (Q/Q) methods. The questionnaire purposefully did not mention the Q/Q issue, considering its vagueness (Blanchard, 2007). Therefore the respondents had no opportunity to refer to it, except in the 'Comments' cell—which they did not do. However, following pragmatically and provisionally the literature, we will use 'Q/Q' as an approximate label of what was implied by the complex mix of responses producing the two opposed $C_1^3$ and $C_3^3$ clusters. Prototypical examples of this cleavage (i.e. courses closest to the clusters' mean points) are respectively courses about *Spatial voting* and *Binary logistic regression*, and *Expert interviews* and *Participatory and Deliberative Methods*. This Q/Q opposition is rooted in long-standing methodological and epistemological cleavages. Initially vivid debates took place between German and Austrian historians and social scientists during the *Methodenstreit* in the 1880s and 1890s. They inherited among others from the opposition between the Cartesian-Newtonian method and conception of the specificity of knowledge about humans inspired from romanticism. They were prolonged by the controversies and confrontations between the Frankfurt and Vienna Schools (Adorno et al., 1976), as well as between the Columbia and Chicago Schools. The current methodological landscape largely inherits from rich debates that degenerated into rigid borders with high risk for trespassers in the second half of the 20$^{th}$ century. The Q/Q opposition and some tenacious efforts to overcome it is the prominent figure of this evolution (Blanchard 2010; Brady and Collier 2010; King et al., 1994; Monroe, 2005).

Third, the left v/s right sides are not symmetrical on the map. At the present stage of this lasting issue, instructors in $C_3^3$ take sides more clearly in matters of general epistemological position (mainly, constructivism and interpretivism) than the ones in $C_1^3$ (mainly empiricism and analyticism). The 'qualitative' side thus seems to be either more coherent epistemologically or more conscious of this coherence, or more prone to affirm it in order to distinguish itself from its previously dominant counterpart. These three explanations probably mingle, as players in the field usually do not take decisions following a concerted strategy. Reversely, the 'quantitative' side seems to display less epistemological momentum and less need to express itself as an independent methodological area. More likely, it has less interest in defining itself in epistemological terms, or the related instructors do not worry as much for the philosophical underpinnings of their method, which they see as secondary compared to concrete research and technical developments. $C_1^3$ appears as in a more advanced stage of epistemological crystallisation than $C_3^3$.

Finally, the 'qualitative-quantitative' divide is not consensual. Several courses, including courses based on empirical data, numerical coding and a comprehensive view on the research process, are very weakly connected with axis 1. This is the case for *Comparative designs, Game theory, Qualitative Comparative Analysis and fuzzy sets*, or *Sequence analysis*. The related instructors apparently do not define their teaching along the $C_1^3$ *vs* $C_3^3$ line, possibly paving the way for less conventional methodological views.

## 6. Varieties of "Qualitative" Methods

The second map (Figure 3) relies on factors 3 and 4. They are orthogonal to axes 1 and 2, which means that the two maps gather distinct information about the structure of the space at hand. They are also less structuring than axes 1 and 2, as they gather 10% of the overall information, but are nonetheless very informative. Conversely to axes 1 and 2, axes 3 and 4 clearly materialize epistemological contrasts. As the first three clusters ($C_1^3$- $C_2^3$- $C_3^3$) do not distinguish precisely enough on this map, we refine the classification by moving up to six clusters ($C_1^6$ to $C_6^6$). This refinement does not impinge on the courses that generate many missing values: $C_3^6$ is equivalent to $C_2^3$, showing that missing values were correctly interpreted and do not reduce the validity of overall conclusions.

[About here:
**Figure 3. A map of methods (factorial map 2).**
Same legend as map 1, but with six-cluster typology]

This new typology generates three interesting new clusters that can be lined up as follows:

On the left-hand side, $C_6^6$ gathers 11 courses, among which *Discourse analysis, Introduction to Atlas.ti, Foreign Languages in Qualitative Research* and *Participatory and Deliberative Methods*. These methods put the emphasis on case studies, data collection at micro-level, data analysis and theory-building, with constructivist and interpretivist epistemological underpinnings. They refer to anthropology and "other social sciences", probably linguistics, iconography, ethnography or literature.

On the upper-right quadrant, $C_4^6$ is composed of six courses, among which *QCA and fuzzy sets* and *Comparative designs*, which take intermediate stances in several respects. Instructors teaching these courses show an interest in causality, non-statistical formalization, a limited ambition to generalize (that is, more than case-centric but less than inference) and modest software use. They favour intermediate Ns, analysis at macro level and a synchronous time dimension. They take up (neo/post)positivist and/or objectivist epistemological positions. This intermediate level has developed vigorously in the past 20 years in the comparative study of politics and policies. On the first map (Figure 2), $C_4^6$ is located in-between $C_1^3$ and $C_3^3$.

The lower-right quadrant, $C_5^6$ gathers seven courses, including *Methodological pluralism and problem-focused research, Issues in Political language* and *Writing ethnographic and other qualitative/interpretive research.* These courses focus on theory-building as $C_4^6$, but they distinguish themselves by placing the accent on single-case studies with no mathematical formalization and using no software. They have no causal purpose, or if they do, they focus on invariant causal processes ("mechanisms"). Their epistemology is mostly realist. Two courses located in the corner, *Knowing and the Known* and *Mathematics for political science*, can be seen as nearly independent cases in this cluster. They express their universal significance and applicability by citing philosophy as a reference discipline. Reversely they neutralize questions about empirical materials and designs, either by ignoring

them or ticking many responses. These two courses mainly fit within $C_5^6$ due to similarities with two other courses that provide an overview on social and political research: *Methodological pluralism and problem-focused research* and *An Introduction to Qualitative Methods for Political Scientists*.

To summarize this second map, it mainly distinguishes three varieties among the broad initial "qualitative" cluster ($C_3^3$ in Figure 2). Each of these varieties considers specific evidence, at specific scales, with specific ways of reasoning and specific tools. The "quantitative" paradigm previously represented by $C_1^3$ (Figure 2) is much less discriminating on this second map. Indeed $C_1^6$, which gathers most courses from the previously 'quantitative' cluster $C_3^3$, displays similar response patterns as $C_3^3$. However on the second map $C_1^6$ is condensed in a small area just under of the centre, which means that it contributes little to the variance of factors 3 and 4. The remaining "quantitative" courses have been "captured" by $C_2^6$ (*Data access and management, Introduction to R* and *Structural equations*). With a specific focus on individual-level data, economics as main discipline of application, and causality, theory-testing and broad generalization as goals, they can be seen as akin to the most traditional 'quantitative' epistemology.

We do not have enough space to present here an extended analysis of axes 5 and further. It suffices to say that these axes do provide indices of further cleavages, including between the courses that formed the "quantitative" $C_1^3$ cluster. They also show the relatively minor role played by questions that have not been cited so far, such as the stage of the research process involved (q2), the role of time (q13) and disciplines (q17).

## 7. Conclusion and further directions

Reaching the level of proficiency with one method requires time and energy. Reaching it with all, or even a reasonable proportion of the flourishing methods, is now illusory. Researchers need to specialise, as well as teachers more and more. This contributes to explain divergences and reciprocal ignorance: no one holds the global view. This is why our empirical, collaborative and comparative study over the evolving geography of methods is useful. This geography is not the one everybody takes for granted by tradition and limited knowledge, nor one that is usually promoted. It neutralises the dominant trend to classify and map methods from a few rough and easy concepts, such as 'qualitative'/'quantitative' (Q/Q).

Our study illustrates a moment in the history of relationships between methods. The debate about methods and more largely about paradigms in the discipline has been stuck for decades in a sort of dead end due to power and identity investments that limited collective intellectual progress. Methods are a core aspect of disciplinary divisions and (undue) hierarchies (Lijphart, 1971). Grounded in power and identity concerns, worldviews and ontological assumptions, as well as arbitrary preferences regarding data or level of analysis, the Q/Q divide stifles methodological reflection (Blanchard 2010). Methods are at the core of the controversy because the way science is performed is a kind of style, and the Q/Q confrontation is largely about style (King et al., 2005: 5).

Yet we had to refer to the Q/Q divide, at least because many scholars still refer to it. We had to name "quantitative" a cluster that appears still self-confident and dominant, with its core focus on objective knowledge, universal generalisations and falsifiable hypotheses tested on large-N samples. The U.S. counter-movement "Perestroika" has illustrated the critics of abstract, decontextualized studies excessively focused on rationality and causality, pleading on the contrary for methodological pluralism, historic and field research, in-depth case studies, interpretive and critical analyses of politics (Schram *in* Monroe 2005: 103-4). In this context, the "qualitative" cluster ($C_3^3$) proves eager to distinguish itself and to display strong epistemological positions, in opposition to the "positivist" stance. This double polarity persists, yet not all instructors comply to it, explicitly or not, some of them trying to escape the Q/Q vocabulary and its aporias. Previous descriptions of the two "traditions" (Mahoney and Goertz, 2012) have often amplified their most contrasting dimensions in order to understand why this divide remains so strong and pervasive, but they obviously oversimplify recent evolutions, as much as they forget how some older, canonical social science studies did not refer to this division, nor rely on it (e.g. Durkheim 1897).

King, Keohane and Verba (1994), as well as Brady and Collier (eds., 2010) lead one way out of the methods war: collecting good practices in one's tradition and trying to convert other traditions to them. We rather bet on an improved understanding of why there is a war, and how it be ended. A methods map helps elaborate new methodological combinations and new ways of teaching methods. In this respect some courses experiment different ways out of the Q/Q story: exploring the concepts and philosophies that provide foundations for the social sciences (e.g. *Knowing and the Known*, a course on epistemological roots of present methodological views and practices); entering social reality from intermediate levels and Ns (*Qualitative Comparative Analysis and Fuzzy Sets*); or combining diverse tools in the study of emerging objects (*Process-tracing, Sequence Analysis*).

The methods mapping survey enables to systematically consider many dimensions in an inductive manner and to uncover structuring similarities and dissimilarities. Naturally, this mapping enterprise should be pushed further. We plan to survey more experts, and several experts on the same method. We will also follow schools over time, which should provide insights into the rearrangement of methodological families and cleavages.

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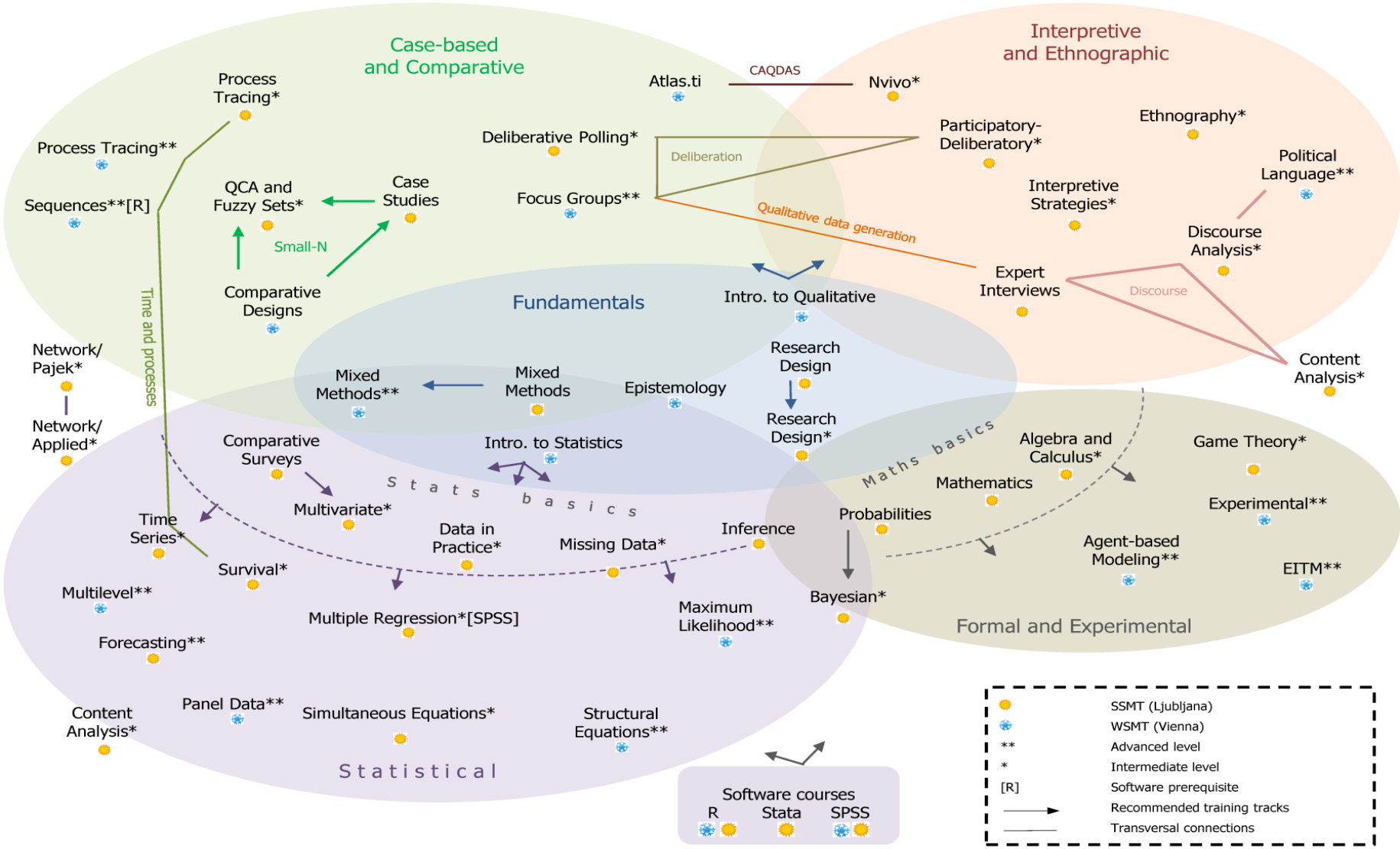
**Figure 1. Training Offer at ECPR Schools in Methods and Techniques in 2012 (first mapping attempt)**

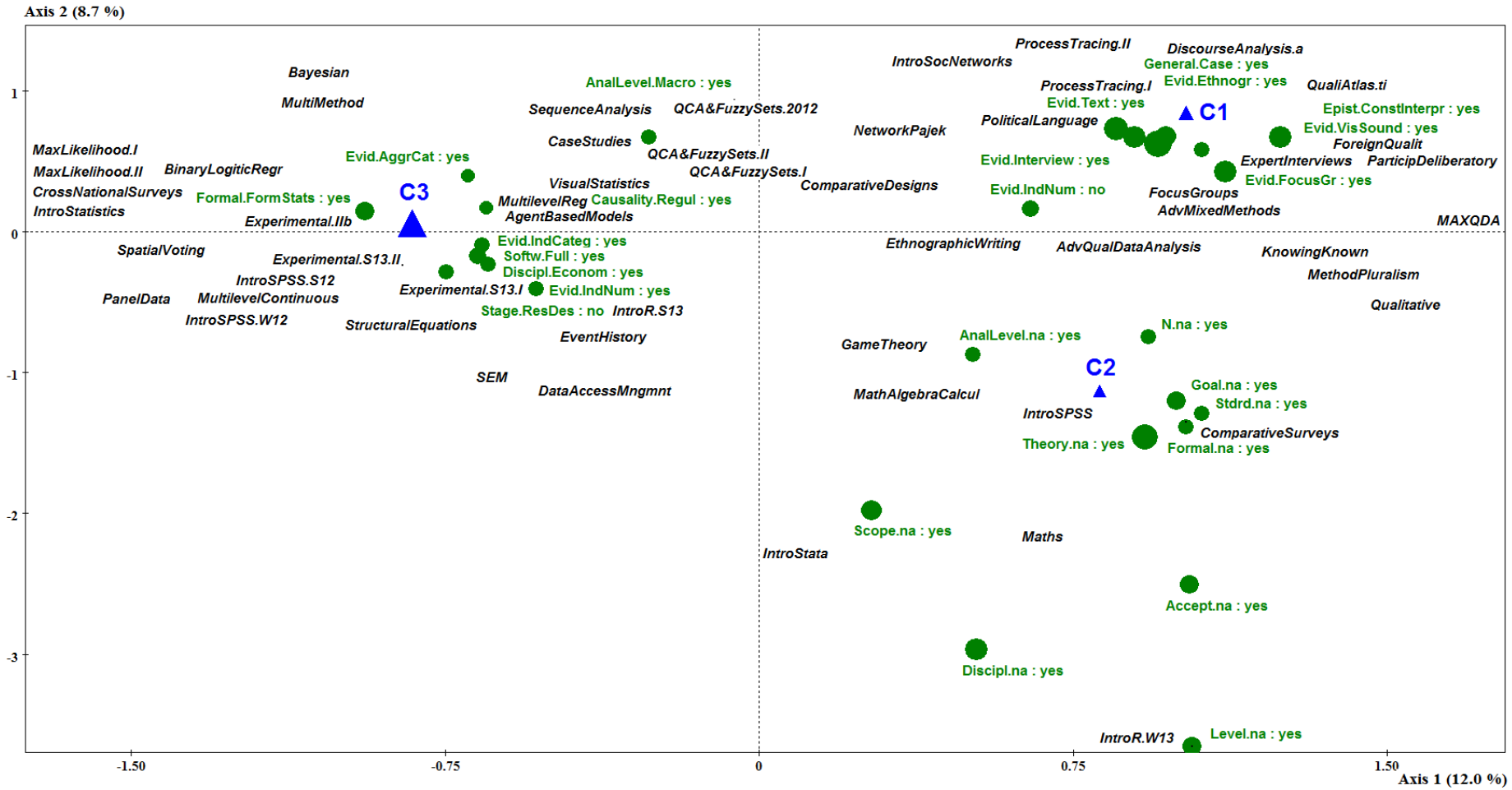


## Table 1. Survey questions and responses

| id | Code on map | Question | **Responses** (all questions also include "Other" and "na") |
|---|---|---|---|
| 1 | **Course** | Name of the course | [N=82] |
| 2 | **Stage** | Which stage of the empirical research process does the method taught in your course mainly address? | Research design/Data collection/Analysis/Reporting |
| 3 | **Level** | At which level do you teach the method your course deals with? | Introductory/Intermediate/Advanced |
| 4 | **Evidence** | Which type of evidence (data, empirical material) does the method taught in your course mainly refer to? | Individual categorical/Individual numerical/Aggregate categorical/Aggregate numerical/Visual and sound/Interviews/Focus groups/Text/Ethnographic material/Secondary data |
| 5 | **AnalLevel** | At which level of analysis is the method taught in your course mainly situated? | Macro/Meso/Micro |
| 6 | **N** | How many empirical units does the method taught in your course mainly address? | Single/Small or intermediate N/Large N |
| 7 | **Generalization** | What is the main scope of the method taught in your course? | Case-centric/Limited generalization/Broad generalization-Inference |
| 8 | **Software** | How software-intensive is the method taught in your course? | None/Some software treatment/Software-based |
| 9 | **Formalization** | How formalized (use of mathematical symbols) is the method taught in your course? | Not formalized/Formalized but non statistical/Formalized (statistical) |
| 10 | **Theory** | How is the method taught in your course connected with theory? | Theory-building/Rather theory-building/rather theory-testing/Theory-testing |
| 11 | **Goal** | What is the main goal of the method taught in your course? | Comprehensive understanding/Rather more comprehension than explanation/Rather more explanation than comprehension/Explanation-causality-full inference |
| 12 | **Causality** | How is causality considered in the method taught in your course? | Main attention on variation and difference-making/Main attention on invariant causal processes/Main attention on set relations/'Causal' analysis not a relevant issue |
| 13 | **Time** | How is the time dimension considered in the method taught in your course? | Synchronic/Diachronic (discrete)/Diachronic (process) |
| 14 | **Standardization** | How standardized is the method taught in your course? | Fully standardized/Semi-standardized/Emerging |
| 15 | **Acceptance** | How widely accepted and practiced within political science is the method taught in your course? | Widely accepted and practiced/Somewhat/Modestly/Not at all |
| 16 | **Epistemology** | Could you define in one or a few words the main epistemological position attached to the method taught in your course? | Open-ended question, coded in 9 responses items: Analyticist, Constr.Interpr, Empirical.Empiricist, Neo.Post.Positivist.Objectivist, Pluralist, Rationalist, Realist |
| 17 | **Discipline** | In which discipline is the method taught in your course most used? | Political science/Sociology/Anthropology/Economics/Other social & behavioural science /Philosophy |
| 18 | **Scope** | What is the main scope of your course? (different research approaches, a research approach, a method, a set of techniques within a method, a specific technique ) | Different research approaches (broadest scope)/A research approach/A method /A set of techniques (within a method) /A specific technique (narrowest scope) |

## Figure 2. A map of methods (factorial map 1)

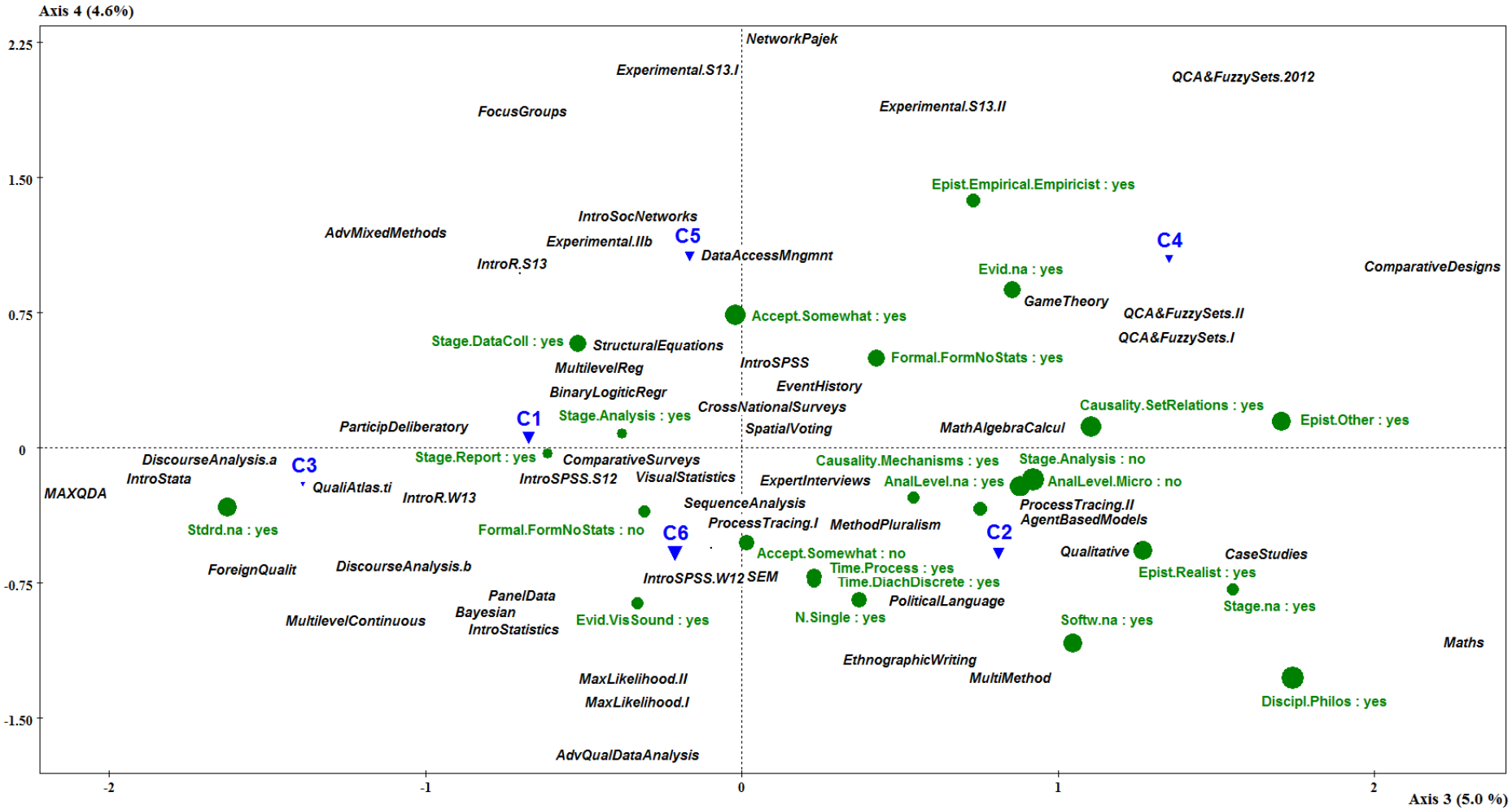
Green dots represent the 15% responses that contribute the most to the map, with size proportionate to their contribution. Black italic labels represent courses, each of which contributes identically to the map. A three-cluster typology (blue triangles) is created by means of ascending hierarchical cluster analysis applied to the CA scores on axes 1 to 4. For example, **Formal.FormStats : yes** (most left green dot) represents the courses whose instructors chose, regarding **Formalisation** (see Table 1: q9), the category "formalised (statistical)". The suffix **': yes'** differentiates courses that do present the mentioned category from courses that do not (**': no'**). Fewer **No**s than **Yes**sesappear on the map because they are less distinctive. Courses ending with **I/II** are basic/advanced training steps on the same topic. **W12/S12/W13** mark different versions of the same course given in the successive Winter and Summer Schools in 2012 and 2013. To improve readability, only the respondents' views have been represented, to the exclusion of predominant views.




*NB: The map does not include the outlier "Discourse Analysis", with coordinates (0.75, 1.95).*

**Figure 3. A map of methods (factorial map 2)**

Same legends as figure 2.




*NB: The map does not include the outlier "Knowing and the Known", with coordinates (2.3, -2.2).*

## Appendix 1. List of courses and their abbreviation on factorial maps

| Course | Abbreviation | Course | Abbreviation |
|---|---|---|---|
| Advanced Mixed Methods Designs | AdvMixedMethods | Introduction to SPSS | IntroSPSS.S12 |
| Advanced Multi-Method Research | MultiMethod | Introduction to STATA | IntroStata |
| Advanced Process Tracing Methods | ProcessTracing.II | Introduction to Statistics | IntroStatistics |
| Advanced Qualitative Data Analysis | AdvQualDataAnalysis | Introduction to Structural Equation Modelling | StructuralEquations |
| Agent-based Modelling in the Social Sciences | AgentBasedModels | Issues in Political Language | PoliticalLanguage |
| An Introduction to Qualitative Methods for Political Scientists | Qualitative | Knowing and the Known: The Philosophy and Methodology of the Social Sciences | KnowingKnown |
| Analysing Discourse – Analysing Politics: Theories | DiscourseAnalysis.a | Lost in Translation? Foreign Languages in Qualitative Research | ForeignQualit |
| Analysing Discourse – Analysing Politics: Theories | DiscourseAnalysis.b | Mathematics for Political Science | Maths |
| Applied Multilevel Modelling I: Multilevel linear models for continuous data | MultilevelContinuous | Mathematics: Linear Algebra and Calculus | MathAlgebraCalcul |
| Case Study Research: Methodology and Practice | CaseStudies | Maximum Likelihood I: Theory and Practice | MaxLikelihood.I |
| Comparative Research Designs | ComparativeDesigns | Maximum Likelihood: Special Applications | MaxLikelihood.II |
| Event History and Survival Analysis | EventHistory | Methodological Pluralism and Problem-Focussed Research | MethodPluralism |
| Experimental Methods I: Methodology | Experimental.S13.I | Multilevel Regression Modelling | MultilevelReg |
| Experimental Methods II.a: Laboratory Experiments | Experimental.S13.II | Multilevel Structural Equation Modelling (SEM) | SEM |
| Experimental Methods IIb: Causal Inference: Field Experiments | Experimental.IIb | Multivariate Statistical Analysis and Comparative Cross-national Survey Data | CrossNationalSurveys |
| Expert Interviews for Qualitative Data Generation | ExpertInterviews | Panel Data Analysis | PanelData |
| Focus Groups - Qualitative Data Generation | FocusGroups | Participatory and Deliberative Methods: From Data Collection to Data Analysis | ParticipDeliberatory |
| Interpreting Binary Logistic Regression Models | BinaryLogiticRegr | Political Game Theory | GameTheory |
| Introduction and Data Management with SPSS | IntroSPSS | Process Tracing Methodology I – Foundations and Guidelines | ProcessTracing.I |
| Introduction to Applied Social Network Analysis | IntroSocNetworks | QCA and Fuzzy Sets: Basics and Advanced Issues in Set-Theoretic Methods | QCA&FuzzySets.2012 |
| Introduction to Bayesian Inference | Bayesian | Qualitative Comparative Analysis and Fuzzy Sets: Basics and Advanced Issues in Set-Theoretic Method | QCA&FuzzySets.II |
| Introduction to Data Access & Management | DataAccessMngmnt | Qualitative Comparative Analysis and Fuzzy Sets: Basics and Advanced Issues in Set-Theoretic Methods | QCA&FuzzySets.I |
| Introduction to MAXQDA | MAXQDA | Statistical Modelling of the Spatial Theory of Voting | SpatialVoting |
| Introduction to Network Analysis Using Pajek | NetworkPajek | Tapping Time: Optimal Matching and Sequence Analysis | SequenceAnalysis |
| Introduction to Qualitative Data Analysis with Atlas-ti | QualiAtlas.ti | Visual Statistics: Analysing your Data Visually | VisualStatistics |
| Introduction to R | IntroR.S13 | Working with Comparative Survey Data | ComparativeSurveys |
| Introduction to R | IntroR.W13 | Writing Ethnographic & Other Qualitative/Interpretive Research: An Inductive Approach | EthnographicWriting |
| Introduction to SPSS | IntroSPSS.W12 | | |

## Appendix 2. List of Questions and responses and their abbreviations on factorial maps

| id | Question | Abbrev. | **Responses** (all questions also include "Other" and "na") | Responses abbreviations |
|---|---|---|---|---|
| 1 | **Course** | **Course** | [N=82] | |
| 2 | **Stage** | **Stage** | Research design/Data collection/Analysis/Reporting | ResDes/DataColl/Analysis/Report |
| 3 | **Level** | **Level** | Introductory/Intermediate/Advanced | Intro/Interm/Adv |
| 4 | **Evidence** | **Evid** | Individual categorical/Individual numerical/Aggregate categorical/Aggregate numerical/Visual and sound/Interviews/Focus groups/Text/Ethnographic material/Secondary data | IndCateg/IndNum/AggrCat/AggrNum/ VisSound/Interview/FocusGr/Text/Eth n/Second |
| 5 | **Analytical Level** | **AnalLevel** | Macro/Meso/Micro | Macro/Meso/Micro |
| 6 | **N** | **N** | Single/Small or intermediate N/Large N | Single/SmallInterm/Large |
| 7 | **Generalization** | **General** | Case-centric/Limited generalization/Broad generalization-Inference | Case/Limited/Broad |
| 8 | **Software** | **Softw** | None/Some software treatment/Software-based | None/Some/Full |
| 9 | **Formalization** | **Formal** | Not formalized/Formalized but non statistical/Formalized (statistical) | Not/FormNonStats/FormStats |
| 10 | **Theory** | **Theory** | Theory-building/Rather theory-building/rather theory-testing/Theory-testing | Bldg/RathBldg/Testg/RathTestg |
| 11 | **Goal** | **Goal** | Comprehensive understanding/Rather more comprehension than explanation/Rather more explanation than comprehension/Explanation-causality-full inference | CompThick/RathComp/RathExplan/Ca usality |
| 12 | **Causality** | **Causality** | Main attention on variation and difference-making/Main attention on invariant causal processes/Main attention on set relations/'Causal' analysis not a relevant issue | Regul/Mechanisms/SetRelations/Not Causal |
| 13 | **Time** | **Time** | Synchronic/Diachronic (discrete)/Diachronic (process) | Sync/DiachDiscrete/Process |
| 14 | **Standardization** | **Stdrd** | Fully standardized/Semi-standardized/Emerging | Ful/Semi/Emerging |
| 15 | **Acceptance** | **Accept** | Widely accepted and practiced/Somewhat/Modestly/Not at all | Widely/Somewhat/Little/NotAtAll |
| 16 | **Epistemology** | **Epist** | Open-ended question, coded in 9 responses items: Analyticist, Constr.Interpr, Empirical.Empiricist, Neo.Posit.Positivist.Objectivist, Pluralist, Rationalist, Realist | Analyticist/Constr.Interpr/Empirical.E mpiricist/ Neo.Posit.Positivist.Objectivist/Plural ist/Rationalist/Realist |
| 17 | **Discipline** | **Discipl** | Political science/Sociology/Anthropology/Economics/Other social & behavioural science /Philosophy | PolSc/Sociol/Anthrop/Econom/OtherS ocSc/Philos |
| 18 | **Scope** | **Scope** | Different research approaches (broadest scope)/A research approach/A method /A set of techniques (within a method) /A specific technique (narrowest scope) | Broadest/Research/Method/SetOfTec hn/Techn |